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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/090,712	03/04/2002	Nagabhushana Sindhushayana	020180	4802
23696	7590	12/05/2006	EXAMINER	
QUALCOMM INCORPORATED			ODOM, CURTIS B	
5775 MOREHOUSE DR.			ART UNIT	
SAN DIEGO, CA 92121			PAPER NUMBER	
			2611	

DATE MAILED: 12/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/090,712

Applicant(s)

SINDHUSHAYANA ET AL.

Examiner

Curtis B. Odom

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 13 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1, 3-5, 7-10, 12-46 and 48-114 is/are pending in the application.
- 4a) Of the above claim(s) 27-45, 72-90 and 100-108 is/are withdrawn from consideration.
- 5) ☐ Claim(s) 1, 3-5, 7-10, 12-26, 46, 48-71, and 109-114 is/are allowed.
- 6) ☒ Claim(s) 91-99 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments filed 5/15/2006 have been fully considered but they are not persuasive. Applicant states that Sundelin et al. (U. S. Patent No. 6, 144, 861) in combination with Shibutani (U. S. Patent No. 6, 940, 824) does not disclose an apparatus configured to use a transmit power margin to modify a quality metric, and a determine a maximum data rate in accordance with the modified quality metric.

However, Sundelin et al. discloses estimating a quality metric represented by SIR (see column 7, lines 43-48). Sundelin et al. further discloses scaling (modifying) the quality metric by a scaling function  $f(x)$  (see column 9, lines 32-40), wherein  $f(x)$  is the slope or rate at which the transmit power increases/decreases (see column 9, lines 8-15), wherein  $f(x)$  represents a transmit power margin. The scaled SIR value remains an SIR value (see column 9, lines 32-40). Shibutani further discloses determining a maximum data rate over a channel in accordance with an SIR measurement (Table 2, column 7, line 61-column 8, line 15). Therefore, it is the understanding of the examiner that Sundelin et al. in combination with Shibutani does in fact disclose using a transmit power margin ( $f(x)$ ) to modify a quality metric (SIR), and determining a maximum data rate in accordance with the scaled quality metric since the SIR value after scaling is still an SIR value, from which a maximum data rate can be determined as disclosed by Shibutani.

*Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 91 and 96-98 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sundelin et al. (previously cited in Office Action 11/1/2005) in view of Shibutani (previously cited in Office Action 5/15/2006).

Regarding claim 91, Sundelin et al. does not disclose an apparatus (Fig. 4) for estimating a wireless reverse link maximum data transmit rate, comprising:

an estimator (Fig. 4, block 102, column 7, lines 43-48) configured to determine at a base station at a quality metric (SIR) of a wireless link between the base station and a mobile station over which data is to be transmitted; and

a combiner (see column 9, lines 32-40) communicatively coupled to the estimator configured to scale (modify) the SIR (quality metric) by a scaling function  $f(x)$ , wherein  $f(x)$  is the slope or rate at which the transmit power increases/decreases (see column 9, lines 8-15), wherein  $f(x)$  represents a transmit power margin;

Sundelin et al. does not disclose the estimation and combination is performed in the mobile station (access terminal) for communication on a reverse wireless link or a processor lock communicatively coupled to the combiner configured to determine a maximum data rate of wireless transmitting data in accordance with the modified quality metric to the base station.

However, Sundelin et al. does disclose the estimation of a quality metric (SIR) is performed at the mobile station (Fig. 2, block 92, column 7, lines 43-51) and also that power control can be performed for reverse link applications (column 2, lines 8-19). Therefore, it would have been obvious to one skilled in the art that the estimation and combination performed at the base station could have been performed in a similar manner at the mobile station to control transmission power across the reverse wireless link since Sundelin et al. states that reverse link power control increases capacity of the system by decreasing unnecessary interference (column 2, lines 8-20).

Shibutani further discloses determining a maximum data rate over a channel in accordance with an SIR measurement (Table 2, column 7, line 61-column 8, line 15). Therefore, it would have been obvious to one skilled in the art to modify the apparatus of Sundelin et al. to determine a maximum data rate based on the SIR or modified SIR (quality metric) since Shibutani states that even in poor channel conditions (low SIR) a minimum data transport is still guaranteed based on determination of data rates for SIR measurements (column 8, lines 45-49).

Regarding claim 96, which inherits the limitations of claim 91, Sundelin et al. further discloses the estimator comprises an open loop estimator (column 6, line 65-column 7, line 15).

Regarding claim 97, which inherits the limitations of claim 91, Sundelin et al. further discloses the estimator comprises a closed loop estimator (column 6, line 65-column 7, line 15).

Regarding claim 98, which inherits the limitations of claim 91, Sundelin et al. further discloses the estimator comprises an open loop estimator (column 6, line 65-column 7, line 15), closed loop estimator (column 6, line 65-column 7, line 15), and a combiner coupled to an open loop and closed loop estimator (Fig. 4, block 108).

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4. Claims 92-95 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sundelin et al. (previously cited in Office Action 11/1/2005) in view of Shibutani (previously cited in Office Action 5/15/2006) as applied to claim 91, and in further view of Gunnarsson et al. (previously cited in Office Action 5/15/2006).

Regarding claims 92-95, Sundelin et al. and Shibutani do not specifically disclose the estimator comprises a predictor which includes a linear filter or non-linear filter comprising a peak filter.

However, Gunnarsson et al. discloses a predictor for estimating SIR (Fig 10, block 136, column 10, lines 45-67) which comprises a digital filter. Digital filters include linear filters, non-linear filters and peak filters. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify the estimator of Sundelin et al. and Shibutani with the predictor of Gunnarsson et al. since Gunnarsson et al. states the predictor predicts how the actually measured signal quality (SIR) would change with respect to power control commands (column 10, line 67-column 11, line 2).

5. Claim 99 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sundelin et al. (previously cited in Office Action 11/1/2005) in view of Shibutani (previously cited in Office Action 5/15/2006) as applied to claim 91, and in further view of Higley (previously cited in Office Action 5/15/2006).

Regarding claim 99, Sundelin et al. and Shibutani do not disclose an outage event detector communicatively coupled to the combiner.

However, Higley discloses detecting an outage event based on incorrect or missing acknowledgement signals (column 3, lines 1-13). Therefore, it would have been obvious to one

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skilled in the art to modify the apparatus of Sundelin et al. and Shibutani to detect outage events as disclosed by Higley since Higley states detecting outage events allows the restoration of the communication channel (column 3, lines 1-13).

*Allowable Subject Matter*

6. Claims 1, 3-5, 7-10, 12-26, 46, 48-71, and 109-114 are allowable over prior art references because related references do not disclose generating an open loop and closed loop estimate of a quality metric, filtering the open loop and closed loop estimates, summing the filtered open and closed loop estimates, modifying the quality metric by a transmission power margin, and determining a maximum rate of data using the modified quality metric.

*Conclusion*

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,


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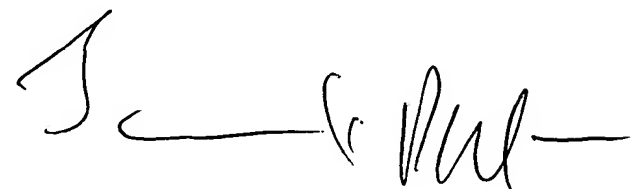
however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Curtis B. Odom whose telephone number is 571-272-3046. The examiner can normally be reached on Monday- Friday, 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Curtis Odom  
November 30, 2006

  
JAY K. PATEL  
SUPERVISORY PATENT EXAMINER